

Claims

1. A non-contact type battery pack charging apparatus, comprising:
  - a power control unit for supplying Direct Current (DC) power to a main control unit and a variable-voltage frequency generation unit;
  - 5 the variable-voltage frequency generation unit for converting the DC power supplied from the power control unit into a frequency having an arbitrary voltage value and outputting the frequency to a magnetic field generation unit under the control of the main control unit;
  - 10 the magnetic field generation unit for receiving the frequency output from the variable-voltage frequency generation unit and radiating a magnetic force corresponding to the frequency to the outside;
  - 15 a voltage comparison unit for detecting a voltage value input to the magnetic field generation unit and a voltage value of the magnetic field generation unit, comparing the voltage values with each other, and outputting a voltage comparison value to the main control unit;
  - 20 a current comparison unit for detecting the voltage value input to the magnetic field generation unit and the voltage value of the magnetic field generation unit, converting the voltage values into current values, comparing the current values with each other, and outputting a current comparison value to the main control unit;
  - 25 a voltage detection unit for detecting a voltage value output from the variable-voltage frequency generation unit and outputting the voltage value to the main control unit;
  - a current detection unit for detecting a voltage value of the magnetic field generation unit, converting the voltage value into a current value, and outputting the current value to the main control unit; and

the main control unit for receiving signals output from the current comparison unit, the voltage comparison unit, the voltage detection unit and the current detection unit and controlling the operations of the variable-voltage frequency generation unit.

5           2. The non-contact type battery pack charging apparatus as set forth in claim 1, wherein the main control unit is connected with a battery pack detection unit for detecting whether the battery pack is installed.

10          3. The non-contact type battery pack charging apparatus as set forth in claim 1, wherein the main control unit is connected with a charging time selection unit for freely changing time required for charging of the battery pack.

4. The non-contact type battery pack charging apparatus as set forth in claim 1, wherein the main control unit is connected with an operational status display unit for allowing a user to be aware of operational status of the battery pack charging apparatus.

15          5. The non-contact type battery pack charging apparatus as set forth in claim 4, wherein the operational status display unit includes an abnormal status display unit for displaying operating errors of the battery pack charging apparatus and a charging status display unit for displaying whether charging of the battery pack is being performed or is complete when the battery pack charging apparatus  
20         is normally performed.